



*Ports and the Clean Air Act:
It's Spreading!*

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Ports and the Clean Air Act

- What are the Sources?
- Regulations Affecting Ports
 - State Implementation Plans
 - Stationary Source Permits
 - Conformity
- Case Study: Port of Houston Authority
- What Can Ports Do?
- The Future...



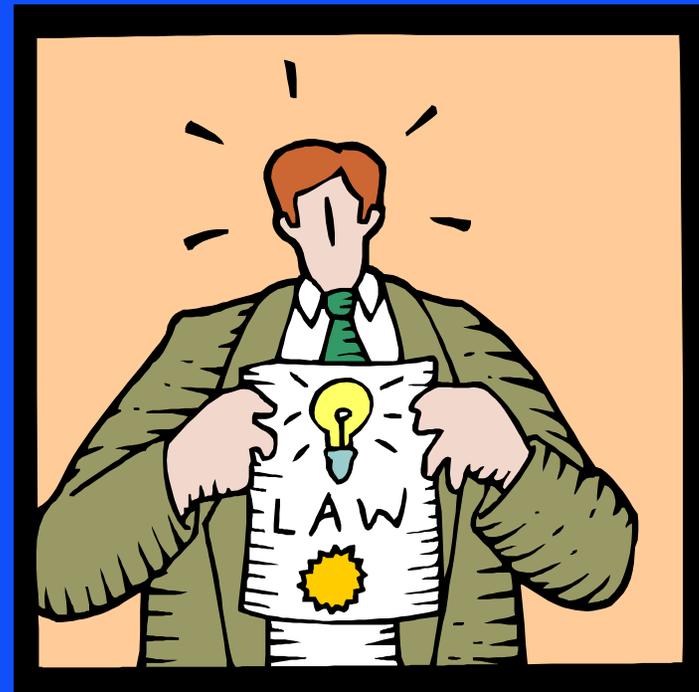
Port Related Emissions

- Offroad Equipment - Yard
Tractors, Rubber Tire
Gantries (RTGs)
- Ocean Going Vessels
- Dredges
- Tug/Tows/Ferries
- Rail
- Onroad Vehicles
 - Port Fleets
 - Trucks
- Stationary Sources - Grain
Elevators, Paint Booths,
Welding Shops



Regulations..

- Ports are regulated!
 - International Vessel Engine Standards
 - National Vessel, Offroad, and Onroad Engine Standards and Stationary Source Permits
 - State Stationary Source Permits
 - Regional State Implementation Plans and Conformity Requirements



State Implementation Plans (SIP)

- Required for Regions exceeding the National Ambient Air Quality Standards
- State Agency must show attainment with NAAQS by a designated year.
- Reductions achieved in three categories: onroad mobile, offroad mobile, and stationary sources.
 - In the past, SIP attainment demonstrations focused on stationary sources and onroad mobile sources



General Conformity

- Required for projects in non-attainment areas with federal funding and/or a federal permit/action.
- Estimate emissions from the federal action in which the federal agency has control over.
- Emissions over the specific de minimus value may require mitigation.

....More on this by Air Princess
Lingard Knutson



Transportation Conformity

- Applies to non-attainment areas
- Metropolitan Planning Organization (MPO) required to perform the conformity determination to the EPA
- Must show that onroad emissions conform with the allotment of emissions in the SIP.
- Port onroad emissions usually not specified.





Case Study for a Port in a Severe Non-Attainment Area for Ozone



Setting the Stage...1998

- SIP Development Began in winter of 1998
 - Port Specific Rules Considered:
 - Tug and Vessel Operation Restrictions
 - 5 Minute Idle Rule
 - Engine Stds/Fuel Stds/Maintenance Requirements
 - Construction Shift 6 am to noon
 - Port Terminal Expansion Project-USACE preparing DEIS.
 - Elevated PM 10 Measurements Adjacent to Bulk Cargo Facility
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Port of Houston's Path

- SIP
 - Participation on ALL Committees
 - » Educate, Educate, Educate...
 - » Inform Port Users
 - » Develop Reasonable Control Measures
 - Promoted Legislative “Fix”
 - Conduct Demo Projects
 - New Vessel & Equipment Emission Inventory
 - Assist MPO—Became “Special Generator”
- Avoided Lawsuits Filed By Construction Industry on the Construction Shift



Port of Houston's Path

- Expansion
 - Emission Inventory in SIP
 - Traffic in Transportation Conformity
 - “Assisted” USACE with General Conformity
 - Focused on Mitigation Package
- PM 10
 - Conducted Study on Port Impacts and Implemented Control Measures
- Switched to Alternative Fuels



As of 1/28/02...SIP Status

- Tx Legislature Passed Senate Bill 5
 - Modeled After Carl Moyer in CA
 - \$100 Million over Next 5 Years for Retrofits, Rebuilds, New Engines, Fuels, and Demo Projects (Lawsuit Pending)
 - Requires \$13,000/ton efficiency or better
 - First Submittal – November 2001
 - » 19 Entities for \$10 Million
 - » Several Large Fuel Cell Projects
 - PHA Package - \$560,000
 - » PuriNOx, Rebuilds, and New Engines



As of 1/28/02...SIP Status

- Port Related Rules
 - 5 Minute Idle Rule
 - Fuels
- Voluntary Measures-4 tpd
 - Quality Shipping
 - ????
- Enforceable Commitments
 - Undefined Port Measures
 - PuriNOx
 - Small Engine SCR
- Lawsuit Filed Requesting FIP



As of 1/28/02Demo's

PuriNOx-Fuel Emulsion

- 2 Years in 5 Yard Trucks
- 1.5 Years in 2 Yard Cranes
- 25-30% NOx Reduction
- 30-50% PM Reduction
- SB 5 Application
 - Increases Fleet to 20
 - Fueling Station
- Cost Effective \$7,500/ton
- Tenant Education



As of 1/28/02...Demo's

SCR

- 550 HP Crane
- 86% NO_x Reduction
- Install/Maintenance Difficulties
- Engine Temp. Issues
- Not Cost Effective
\$18,000/ton



As of 1/28/02... Other Demo's

- Fuel Cell
 - Power Ship and Reefers
- Biodiesel
- Other SCR's
- Quality Shipping
 - Part of USCG's QualShip 21
 - Waiting on EPA/TNRCC/USCG/MPO Agreement



As of 1/28/02...Expansion Project

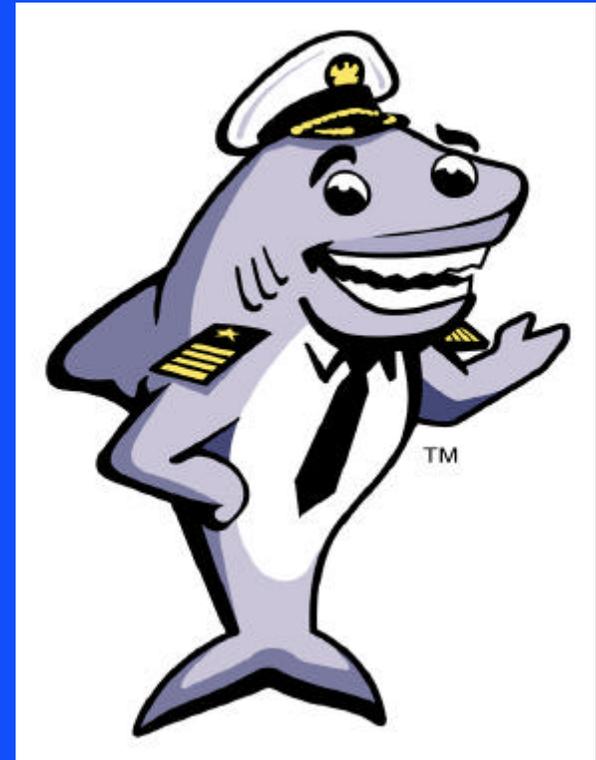
- Committed to Staying Below General Conformity-25 tpy
 - 4 Different Dredging Plans
 - Air Emission Requirement in Bid Specs
- Use of Alternative Fuels
- Equipment Emission Reductions-25% NOx and 30 % PM
- Moved Entry Gate Away from Residential Area



Environmental Stewardship

- Developed Environmental Management System (EMS) Based on ISO 14001
- Commitments for Pollution Prevention, Continual Improvement & Regulatory Compliance
- Objective & Target – 25% NO_x Reduction by 2004

**Continually Achieving Protection thru
Training Awareness and Innovation
for our Natural resources**



The future...

- SIP-Focus on offroad sector.
 - Significant Focus on Tugs/Vessels/Dredges
 - Port Equipment – Retrofits, Fuels, Replacements
 - Significant coordination with tenants to reduce emissions.
- General Conformity
 - More Involvement by USACE/EPA
 - Nationwide Discussion
- Increased Focus on Diesel Emissions
- Port Expansions
- PM 2.5 Designations



Unresolved...

- States Need Offroad Emission Reductions NOW!
 - States Can Only Regulate Useage and Fuels for Offroad Reductions
 - Retrofits Aren't There
 - Documentation of Emission Reductions
- International Vessel Emission Reductions
- Funding
- Understanding of Ports
 - Time, Costs, Emission Reductions



What Can Ports Do?

- Develop Emission Inventories
 - Accurate Numbers
 - Control Strategies
 - Participate in SIP Development
 - Talk to the MPO
 - Educate Agencies
 - Participate in National Discussions
 - Demo Projects
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Additional Information on PHA
Commitments and EMS –

www.peercenter.net

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